



## POSTER PRESENTATION

## Open Access

# Dissociation of T lymphocyte subpopulations in patients with juvenile idiopathic arthritis

Bulegenova Minira\*, Akhenbekova Aida

From 21st European Pediatric Rheumatology (PReS) Congress  
Belgrade, Serbia. 17-21 September 2014

## Introduction

Introduction and objective: it is well known fact that the key point in the development of an autoimmune response in rheumatoid inflammation is the dissociation between subpopulations of T lymphocytes.

## Objectives

The aim of our study was to analyze the quantitative changes in the spectrum of T-lymphocytes and the activity of the pathological process in children with juvenile idiopathic arthritis (JIA).

## Methods

Materials and Methods: the main subpopulations of T-lymphocytes in peripheral blood were determined by laser flow cytometer - FacsCalibur using the program Cell-Quest. The study was conducted in patients with different stages of JIA. A following panel of antibodies: CD45/CD14, IgG1/IgG2, CD3/CD19, CD4/CD8, CD3/HLA-DR, CD16/56, CD71, CD95/CD54, CD38 was used to identify lymphocyte populations.

## Results

Results of our study revealed the elevated levels of lymphocytes expressing CD3 + CD19 markers -  $27,3 \pm 3,4\%$  (compared with the reference parameters -  $9,5 \pm 1,1\%$ ). Besides, decreasing of CD3+19-T-lymphocytes ( $51,6 \pm 2,4\%$  compared to healthy  $76,2 \pm 1,5\%$ ), was in direct correlation with the high activity of the process ( $P < 0,05$ ). Moreover, it was necessary to define two groups of results:

1 - a significant increase in T-helper cells (CD4 + CD8-) to  $44,9 \pm 4,2\%$  (control group -  $34,7 \pm 2,1\%$ ) while the number of CD8 + Tcytotoxic cells was within normal

parameters. These results indicate the predominant contribution of 2 and 3 types hypersensitivity, which are characterized with the production of autoantibodies during the pathology process.

2 - preservation of T-helper population within the reference values while the content of T CD8 + effectors was increased that indicates the cell type of hypersensitivity. Growth of CD8 + T cells correlated with the activity of the process, while remaining normal in oligoarthritis with low laboratory activity (ESR, CRP). Deterioration of articular changes followed by increased levels of CD95+T-lymphocytes ( $12,8 \pm 1,9\%$  when a rate of healthy is  $3,2 \pm 0,6\%$ ). In our opinion, direct correlation between the CD95+T lymphocytes and CD8+Tcytotoxic cells indicated the dependence between proliferation, cytotoxicity and apoptosis. The level of activated CD3 + HLA-DR+ T cells was significantly increased in JIA up to  $9,7 \pm 1,5\%$  (compared with healthy children -  $4,1 \pm 0,5\%$ ). In one patient with systemic JIA (stage of severe rheumatoid inflammation) the level of activated CD3 + HLA-DR + T lymphocytes increased dramatically up to 38.7%. It is necessary to point that our results did not reveal the growth of the serum immunoglobulins.

## Conclusion

Conclusion: dissociation of T-lymphocyte subpopulations in children with JIA correlated with clinical activity of the disease. Screening of T lymphocytes populations is promising for a personified therapy selection in patients with JIA.

## Disclosure of interest

None declared.

Published: 17 September 2014

doi:10.1186/1546-0096-12-S1-P210

**Cite this article as:** Minira and Aida: Dissociation of T lymphocyte subpopulations in patients with juvenile idiopathic arthritis. *Pediatric Rheumatology* 2014 **12**(Suppl 1):P210.

**Submit your next manuscript to BioMed Central  
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
[www.biomedcentral.com/submit](http://www.biomedcentral.com/submit)

